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**JAN 27 2004**

Mr. James A. Saric, Remedial Project Manager  
United States Environmental Protection Agency  
Region V, SR-6J  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

DOE-0124-04

Mr. Tom Schneider, Project Manager  
Ohio Environmental Protection Agency  
401 East 5th Street  
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

**MISCELLANEOUS SMALL STRUCTURES – PHASE II PROJECT AMENDMENT #2 FOR  
ABOVE GRADE DECONTAMINATION AND DISMANTLEMENT OF COMPONENT 35A  
(SILO 4)**

Enclosed for your review and approval is the Miscellaneous Small Structures (MSS) – Phase II Project Amendment #2 for above grade Decontamination and Dismantlement (D&D) of Component 35A (Metal Oxide Storage Tank - Silo 4), including the overhead steel training structure.

During our weekly conference call a concern was raised as to the potential future need for the Silo 4 structures to facilitate Silo 1,2 and 3 Remediation Startup, Readiness and/or training. Silo project personnel have indicated they have no future need of the structures.

The Silo 3 Project completed a demonstration of the vacuum wand maneuverability working at the top of Silo 4 and has the information needed to proceed with Silo 3 work. Last year, the Silo 3 Project completed demonstration of the cutting operation, bracing system setting/removal and block removal. Training on the excavator and braces layout will be conducted in the Silo 3 facility excavator room. The Silo 3 Project anticipates being able to use trained workers from the previous demonstration for the cutting operation. Additionally, the AWR schedule indicates there are no plans to use the Silo 4 facility.

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Mr. James A. Saric  
Mr. Tom Schneider

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DOE-0124-04

If there are any questions concerning this subject, please contact Johnny Reising at (513) 648-3139.

Sincerely,



FCP:Reising

for

William J. Taylor  
Director

Enclosure: As Stated

cc w/enclosure:

J. McCloskey, EM-31/CLOV

J. Trygier, OH/FCP

G. Jablonowski, USEPA-V, SR-6J

T. Schneider, OEPA-Dayton (three copies of enclosure)

F. Bell, ATSDR

M. Cullerton, Tetra Tech

M. Shupe, HSI GeoTrans

R. Vandegrift, ODH

AR Coordinator, Fluor Fernald, Inc./MS78

cc w/o enclosure:

K. Johnson, OH/FCP

B. Edmondson, Fluor Fernald, Inc./MS52-0

J. Fry, Fluor Fernald, Inc./MS87

M. Jewett, Fluor Fernald, Inc./MS52-5

M. Stevens, Fluor Fernald, Inc./MS87

ECDC, Fluor Fernald, Inc./MS52-7

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**AMENDMENT #2 - MISCELLANEOUS SMALL STRUCTURES PHASE II  
IMPLEMENTATION PLAN  
FOR ABOVE GRADE DECONTAMINATION AND DISMANTLEMENT  
OF COMPONENT 35A**

**JANUARY 2004**

**1.0 Project Statement**

This amendment to the Miscellaneous Small Structures (MSS) Phase II Implementation Plan represents the remedial design documentation for the above-grade decontamination and dismantlement (D&D) of the Operable Unit 4 Component 35A (Metal Oxide Storage Tank (Silo 4)) including the overhead steel training structure located at the U.S. Department of Energy (DOE) Fernald Closure Project (FCP) in Fernald, Ohio. Component 35A (Silo 4) is being added to Phase II of the MSS D&D Project because the D&D completion date has been accelerated to meet the 2006 Fernald Closure Plan and Component 35A is small in scope making it relatively easy to D&D.

This document provides the pertinent information required for amending the MSS Phase II D&D Project Implementation Plan. Section 2 provides the general project remediation approach. Section 3 provides the component-specific description. Section 4 provides the implementation schedule. Section 5 provides photographs of Component 35A including the overhead steel training structure.

**2.0 General Project Remediation Approach**

The general project remediation approach is described in Section 2 of the MSS Phase II D&D Implementation Plan. However, Section 2 of this document provides a summary of the radiological data, debris/waste volume estimates and above grade dismantlement activities for Component 35A (Silo 4).

The components that make up Component 35A include the silo and the bridge. These structures remain empty and/or have never been used for operations. The Silo 4 wall is partially below grade due to the regrading or fill that has occurred around the silo. The soil is classified as contaminated although contamination has not been detected. Because of water in the silo, radiological characterization is incomplete, but surface decontamination is not anticipated. The bridge was built after operations or filling of the adjacent silos, may have minimal contamination and may remain on-site for disposal. The silo concrete will not be free-released for disposal because of the silos area history and will remain on-site for disposal.

Representative surveys will be performed prior to demolition of Component 35A and the bridge.

Estimates of Component 35A material volumes have been summarized in Tables 2-1, 2-2 and 2-3. Tables 2-1 and 2-2 list quantities of materials in units of bulked and unbulk cubic yards respectively. Table 2-3 lists the estimated weight of material in tons.

**TABLE 2-1 MSS D&D PROJECT BULKED MATERIAL VOLUME ESTIMATES (CU YDS)**

| Component Number | Cat. A | Cat. B | Cat. D | Cat. E | Cat. G | Cat. H | Cat. I-2 | Cat. I-4 | Cat. J   | TOTALS |
|------------------|--------|--------|--------|--------|--------|--------|----------|----------|----------|--------|
| 35A              | 605.0  | 206.0  | 156.0  | 1182.0 | 0.0    | 0.0    | 182.0    | 106.0    | 2.7      | 2439.7 |
| Container/Qty.   | ROB/21 | ROB/7  | ROB/6  | ROB/40 |        |        | ROB/7    | ROB/4    | Drums/9  |        |
| Interim Storage  | OSDF   | OSDF   | OSDF   | OSDF   |        |        | OSDF     | OSDF     | Bldg. 79 |        |
|                  | Trans  | Trans  | Trans  | Trans  |        |        | Trans    | Trans    |          |        |
| Disposition      | OSDF   | OSDF   | OSDF   | OSDF   |        |        | OSDF     | OSDF     | Offsite  |        |

**General Notes:**

OU3 Debris Categories: Cat. A – Accessible Metals; Cat. B – Inaccessible Metals; Cat. C – Process Related Metals; Cat. D – Painted Light Gage Metals; Cat. E – Concrete; Cat. F – Brick; Cat. G – Non-Regulated ACM; Cat. H – Regulated ACM; Cat. I – Miscellaneous Materials; Cat. J – Special Materials

ROB: Roll-Off Box holds 30 cubic yards (810 cubic feet) and/or 16.95 tons of material; ISO: End-Loading Container/Sea Land boxes, holds up to 36 cubic yards (971 cubic feet) and/or 42,000 lbs. of material. WMB: White Metal Box holds 80 cubic feet with a weight restriction of 8000 lbs.

OSDF Trans: On-site Disposal Facility Transfer area. Refers to direct disposal in the OSDF; however, the ability to deliver debris directly to the OSDF Transfer area is dependent on whether the OSDF is accepting and/or availability of containers (ROBs) for transport. If necessary, Category A,B,D and E debris may be temporarily stockpiled on available building pads or at the On-site Material Transfer Area at project completion. Off-site Com: Off-site Commercial Facility.

**TABLE 2-2 MSS D&D PROJECT UNBULKED MATERIAL VOLUME ESTIMATES (CU YDS)**

| Component Number | Cat. A | Cat. B | Cat. D | Cat. E | Cat. G | Cat. H | Cat. I-2 | Cat. I-4 | Cat. J | TOTALS |
|------------------|--------|--------|--------|--------|--------|--------|----------|----------|--------|--------|
| 35A              | 120.0  | 57.0   | 44.0   | 472.0  | 0.0    | 0.0    | 101.0    | 45.0     | 2.7    | 841.7  |

General Note: Refer to Table 2-1 General Notes for Debris Waste Category descriptions.

**TABLE 2-3 MSS D&D PROJECT MATERIAL WEIGHT ESTIMATES (Tons)**

| Component Number | Cat. A | Cat. B | Cat. D | Cat. E | Cat. G | Cat. H | Cat. I-2 | Cat. I-4 | Cat. J | TOTALS |
|------------------|--------|--------|--------|--------|--------|--------|----------|----------|--------|--------|
| 35A              | 175.0  | 15.0   | 18.4   | 543.7  | 0.0    | 0.0    | 91.0     | 53.0     | 0.5    | 0.0    |

General Note: Refer to Table 2-1 General Notes for Debris Waste Category descriptions.

**TABLE 2-4 ABOVE GRADE DISMANTLEMENT ACTIVITIES FOR COMPONENT 35A**

| Component Number | Inventory Removal | Facilities Shutdown | Asbestos Abatement | Surface Decon | Equip./Sys. Dismantlement | Transite Removal | Structural Steel or Steel Frame Dismantlement | Concrete or Masonry Removal |
|------------------|-------------------|---------------------|--------------------|---------------|---------------------------|------------------|---|-----------------------------|
| 35A              | N/R               | X                   | N/R                | N/R           | X                         | N/R              | X   | X                           |

**3.0 Component 35A (Silo 4) Component-Specific Description**

Background – Component 35A (Metal Oxide Storage Tank (Silo 4)) was constructed in 1952 and is located south of the Waste Pit Area at the Fernald Closure Project. Component 35A is a freestanding, post-tensioned concrete, domed silo. It is approximately 80 feet in diameter and approximately 33 feet above ground level (apex). The floor system is approximately 17 inches of compacted clay, a two-inch thick layer of asphaltic concrete and an eight-inch layer of gravel, topped by four inches of concrete. Component 35A does not have an underdrain system. The dome roof tapers from eight inches thick at the silo walls to four inches thick at the apex. The apex is 36 feet high from top of foundation, 33 feet above grade. The walls are 27 feet high from the top of the foundation. Component 35A contains increased reinforcing around the dome periphery (ring beam) to support the additional loading for a dust collector that was never installed. Component 35A has wire-wrapped post-tensioning using eight-gage wire drawn to 0.141 inches. Component 35A has 46 decant ports, each with a weir and baffle

system. There are 23 decant ports on the east side wall and 23 on the west side wall. The dome has seven manways. Five manways have an internal diameter of approximately 20 inches. One manway is centered. Four of the manways are arranged radially, about 25 feet from the center manway and 90 degrees apart. There are two additional 24-inch manways, one at the southern dome edge and one at the eastern dome edge. The dome also has 24 two-inch diameter sounding pipes and one six-inch diameter vent pipe. A concrete frame was constructed on the west side of the silo wall during 2002. The frame is approximately two feet by two feet at the header and three feet by two feet for the sides, reinforced concrete dowelled into the silo framing a 15 feet by 20 feet future opening. Sections of the opening area have been removed.

A structural steel bridge was constructed over 35A as part of the Vitrification Pilot Plant Project. The bridge has a concrete foundation on the northwest and southeast sides of the silo. Each foundation is 18 feet by 24 feet by 2.3 feet thick below-grade with four above-grade concrete piers (exposed) supporting each bridge column. The bridge has two towers that are 10 feet by 16 feet by 50 feet high and a center span of 98 feet by 16 feet by 10 feet high. The bridge contains an enclosed metal siding headhouse section, a hoist, various blowers, ductwork, piping and lighting. The equipment was never used.

Process Area Description – Component 35A was constructed in 1952 and never used during processing. Since Component 35A is empty, it has exhibited deteriorated concrete conditions due to the freeze-thaw cycling and alkali-silica reaction. The deterioration is evident through spalling of the roof, walls & floor and cracking/popouts on the walls. While the walls have evidence of delamination, the reinforcing appears to be predominately corrosion free.

Component 35A has been used for demonstration purposes in support of other projects. The silo has been used as a training location for confined space, emergency response and for the small-scale waste retrieval mock-up in 1996. Prior to construction of the current Silo 3 Remediation Project facility, underground lines were cut and abandoned around and between the Silos 3 and 4. In 2002, the Silo 3 project constructed a concrete frame on the west side of the silo to demonstrate concrete saw cutting into the silo. During 2003 and 2004, workers demonstrated manipulation of the Vacuum Wand Management System from the bridge. The Advanced Waste Retrieval project demonstrated cutting openings into the dome using a water laser during 2003. The debris from these two projects has been placed into the silo for disposition with the main structure.

#### 4.0 Schedule

The implementation schedule for field remediation of Component 35A (Silo 4) is identified in Table 4-1.

**Table 4-1 Component 35A D&D Schedule**

| Activity                        | Date  |
|---------------------------------|---|
| Demolition Start                | One week after EPA approval.                    |
| Complete Demolition             | Approximately six weeks after demolition start. |
| Issue Project Completion Report | Thirty days after demolition complete.          |

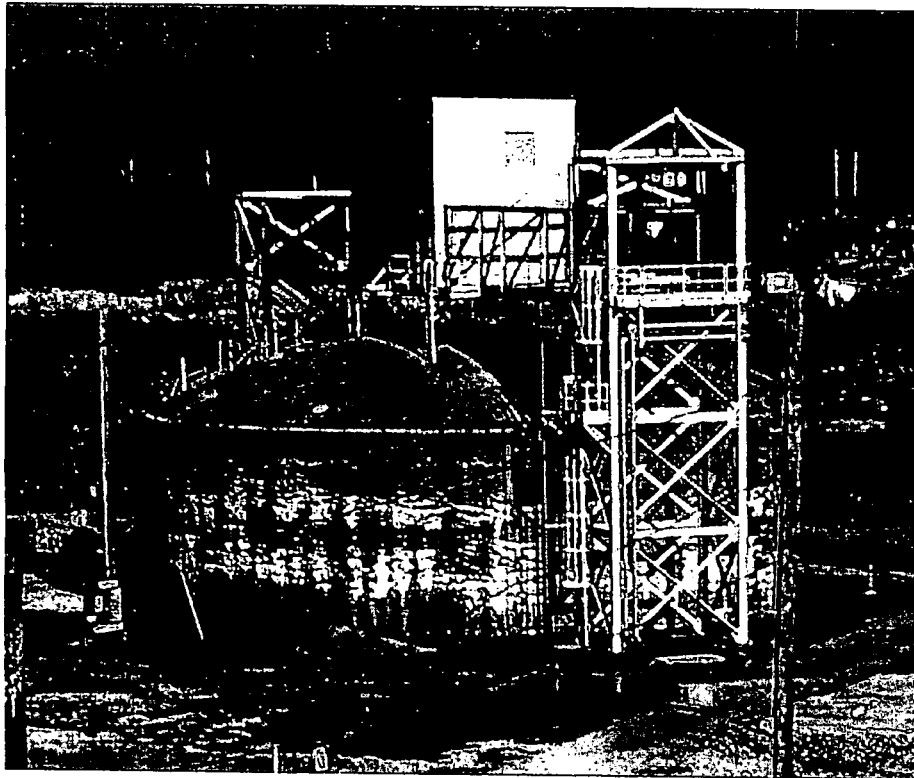
## 5.0 Photographs

Photos compiled for Component 35A (Silo 4) are summarized in Appendix A.

Table 5-1 Photographs

| Component     | Photo #   |
|---------------|-----------|
| 35A (Silo 4)  | 7325D-883 |
| 35 A (Silo 4) | 8027D-155 |

# METAL OXIDE STORAGE TANK 35A (SILO 4)



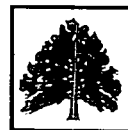
7325D-883

# METAL OXIDE STORAGE TANK 35A (SILO 4)



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